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ABSTRACT

The study examined the efficacy of familiarity and positive verbal reinforcement in improving intelligence test scores of 48 third-graders who were low scorers on a previous test. The Quick Test was used to screen subjects, with a 90 IQ score being the criterion for inclusion in the study. Subjects were randomly assigned to one of four groups. The examiner met with members of the familiarity groups on three occasions for twenty minutes each, for the three weeks immediately prior to testing. Positive verbal reinforcement was given to these experimental groups after the first, second, and third item of each subtest regardless of accuracy. Neutral, non-evaluative comments were given to members of the control group at the same points in testing. All subjects were administered five subtests of the Wechsler Intelligence Scale for Children-Revised. A two-way analysis of variance was used to test the hypotheses. Simple effects were also tested in all cases where the interactions were significant. The results indicated that the treatment procedures did affect the test scores obtained on three of the subtests. Explanations for the findings are postulated, and the implications discussed. (Author)

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TITLE: The Effects of Familiarity and Positive Verbal Reinforcement on Selected WISC-R Subtest Performance of Black Urban Children Who Performed at a Low Level on The Quick Test

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ABSTRACT

The study examined the efficacy of familiarity and positive verbal reinforcement in improving intelligence test scores of third graders who were low scorers on a previous test.

Forty-eight third graders from four schools in a large urban school system participated in the study. The Quick Test was used to screen subjects, with a 90 I.Q. score being the criterion for inclusion in the study. Subjects were randomly assigned to one of four groups. The examiner met with members of the familiarity groups on three occasions for twenty minutes each, for the three weeks immediately prior to testing. Positive verbal reinforcement was given to these experimental groups after the first, second, and third item of each subtest regardless of accuracy. Neutral, non-evaluative comments were given to members of the control group at the same points in testing. All subjects were administered five subtests of the WISC-R. A two-way analysis of variance was used to test the hypotheses. Simple effects were also tested in all cases where the interactions were significant.

The results indicated that the treatment procedures did affect the test scores obtained on three of the subtests. Explanations for the findings are postulated, and the implications discussed.

INTRODUCTION

Purpose of the Study

The purpose of the study was to examine the efficacy of familiarity and positive verbal reinforcement on performance on selected intelligence test subtests of Black, urban students who had obtained low scores on another ability test. The intelligence test subtests were taken from the Wechsler Intelligence Scale for Children - Revised (WISC-R). The ability test with which the children were identified was the Quick Test.

Rationale for the Study

Most books or articles concerned with the measurement of "intelligence" contain statements to the effect that it is important for the tester to establish good rapport with the subject. Wechsler (1974) stated that the administration of the WISC-R requires a friendly relationship between examiner and the child in order to maximize the child's performance. The literature tends to suggest that familiarity does affect test performance, and that the longer the period of time spent establishing rapport and becoming familiar, the greater will be the effect on test performance (Exner, 1974; Feldman and Sullivan, 19; Kinnie and Stieloff, 1971). Thus, it seemed reasonable to investigate the effects of familiarity on test performance. Since the familiarity treatment used was relatively extensive, it was expected to result in significant increases in test scores.

This familiarity building treatment procedure rests upon the writings of Arthur W. Combs, a humanistic psychologist. Combs (1978) states that learning and optimum academic performance are most likely to occur under conditions in which a person feels safe, assured that he can deal with the events and tasks, encouraged to make the attempt, and more fulfilled at having done so. The theory further states that if a person knows that he is cared for and belongs, he feels excited, exhilarated, and wants to get involved (Combs, 1982). That is, he becomes motivated to participate and to perform. Consequently, learning and performance will be at their optimum level. When the familiarity treatment is looked at in the context of Comb's theory one can expect that a child who is familiar with the examiner, who has established a relationship with the examiner through a number of meetings would be more likely to experience all of the feelings and emotions which Combs feels are necessary for learning and optimum performance. Thus, test scores will be significantly increased.

The role of praise has also been widely examined. As early as 1916 Terman made the point that praising the child's efforts in the testing situation contributed more than anything else to satisfactory performance (Witmer, Bernstein, and Dunham, 1971). Terman and Merrill (1937) advised the examiner to enlist the subjects best efforts by establishing and maintaining adequate rapport, and by praising frequently (Witmer, Bernstein, and Dunham, 1971). The expected outcome of examiner

positive verbal reinforcement was that the student would be motivated and prompted to perform at his optimum level. Thus, the test score would be significantly higher than it would be otherwise.

The praise treatment condition rests upon B.F. Skinner's principle of motivation. According to this principle, positive reinforcement motivates the organism to repeat the behavior which resulted in the initial reinforcement (Klausmeier, 1971). Thus, the examiner's positive verbal reinforcement was expected to motivate the examinee to attempt to continuously give correct answers in order to continuously receive positive verbal reinforcement. Consequently, the overall test score was expected to be significantly increased.

Despite the fact that both independent variables of interest here, familiarity and verbal reinforcement, have theoretical bases, and both have been examined in the literature, the manipulation of both variables with a population of Black urban students has received limited attention. It is widely known that there are a disproportionate number of ethnic minorities and urban students in special education classes (Reschly, 1979). This study attempted to show that the "intelligence" test scores of many of these students can be increased as a result of examiner-examinee interaction.

The subtests utilized as measures of the independent variable in this study were selected because they bear the closest resemblance to the normal classroom demands.

Operational Definitions of the Variables

Independent Variables

Familiarity versus no familiarity: Familiarity was defined as the procedure in which the examiner met with members of the first and second experimental groups on three occasions of twenty minutes each. The time was spent informally playing games, talking and sharing stories. Members of the third experimental group and the control group spent no time with the examiner prior to testing.

Positive verbal reinforcement versus no reinforcement: Positive verbal reinforcement was described as the procedure in which members of the first and third experimental group were praised verbally, i.e., "That's very good, keep it up," "Fine," and "You're doing well, keep it up." Members of the second experimental group and the control group received neutral non-evaluative comments, i.e., "Now try this one," "Let's try the next one," and "Okay, answer this."

REVIEW OF THE LITERATURE

There is strong evidence to indicate that the scores of children on individual "intelligence" tests are affected by variables other than "intelligence." The examiner-examinee relationship, and the examinee's socioeconomic status (SES) have been identified as two variables which may influence overall test performance. The literature also suggests that non-cognitive variables such as the "tone" of test administration do influence test scores (Candelori, 1970). "Tone" as used in the literature referred to the wording and contents of the introduction prior to test administration (Candelori, 1970).

Rosenthal (1976) noted that both the psychological attributes of the experimenter and situational factors during the experiment serve to influence the outcome of the experiment. In his book, Experimenter Effects in Behavioral Research, Rosenthal (1970) cited data which supported the hypothesis that subject's performance on "intelligence" tests may be affected by the warmth and verbal approval of the examiner. The literature has also suggested that the nature and extent of the social relationships between child and tester do result in IQ changes (Sacks, 1972). Tzudzuki, Hata, and Kuze (1950) reported that mentally retarded subjects well acquainted with the experimenter obtained higher scores on the Stanford-Binet Intelligence Test than those subjects tested by a strange examiner. However, the literature on the influence of nonintellective factors on per-

formance on the Wechsler scales has been contradictory. The majority of researchers have found that familiarity does make a difference (Exner, 1966; Feldman and Sullivan, 1971; Kinnie and Sternloff, 1971). However, Irons (1981) found that time spent in the establishment of familiarity with the examiner had no effect on WISC-R IQs. The authors have suggested that the difference in results might have been due to the fact that only young children are influenced by familiarity with examiner. Whereas the other studies had used subjects 5 years old and younger, the study done by Irons (1981) used 6 and 10 year olds.

Several studies have found that lower-class black children and children who score low on ability tests perform better on cognitive tasks when reinforced (Terrell, Terrell, and Taylor, 1980; Saigh, 1971). Witmer, Bernstein and Dunham (1981) reported that their verbal approval treatment was positively related to WISC IQ scores on their non-retarded subjects. Analgously, Saigh and Payne (1976) found that their positive verbal comments significantly improved the selected WISC subtests scores of their EMR population.

METHODOLOGY

Subjects for this investigation consisted of 48 third-grade students attending four elementary schools. All participants were black, urban students. The age range of members of the sample was 8 to 11 years old. The schools from which the sample was drawn were located in a low socioeconomic section of a large eastern city. Schools were matched in terms of economic locations, geographic locations, teacher-student ratio, and support services. Eight third-grade classes were administered the Quick Test. The criterion score for inclusion in the study was 90 or less. A random table of numbers was used to select 48 of the total number of students obtaining the criterion score. Students were randomly assigned to one of four groups, i.e., three experimental groups or one control group. An attempt was made to control for sex differences by assigning an equal number of boys and girls to each group.

Testing was done by two examiners. A method of minimizing examiner differences was utilized, to maximize the reliability of the measure and help insure the internal validity of experiment. The method entailed review of specific techniques and directions with both examiners prior to testing. Examiners were both Black females who had completed a course in Individual Assessment of Cognitive Abilities; and who were familiar with the administration and scoring of the instruments.

A post-test control group factorial design was used in the investigation. The schematic representation of this procedure is as follows:

	Familiarity: Treatment	Familiarity: No Treatment
Positive Verbal Reinforcement: Treatment		
Positive Verbal Reinforcement: No Treatment		

The following research questions were asked:

(1) Would there be a significant difference between the scores of examinees who received both the familiarity and the verbal reinforcement treatments, and the examinees who obtained just the familiarity, just the verbal reinforcement treatment, or no treatment at all?

(2) Would there be a significant difference between the scores of examinees who received the familiarity treatment, and examinees who received the verbal reinforcement treatment, or no treatment at all?

(3) Would there be a significant difference between the scores of examinees who received the verbal reinforcement treatment, and examinees who received no treatment at all.

Examiners met with members of the two experimental groups receiving the familiarity treatment on three occasions prior to testing. Subjects were divided according to sex, with members of the same sex meeting at the same time. The time was spent informally playing games, talking and sharing stories. Positive verbal reinforcement was

given to members of the experimental group after the first, second, and third item of each subtest regardless of accuracy. Neutral, non-evaluative comments were given to members of the control group at the same points in the testing process. All subjects were administered the Vocabulary, Similarities, Arithmetic, Block Design and Digit Span subtests of the WISC-R.

Each of the examiners scored the record forms of the subjects whom they tested. All record forms were then blindly scored by an expert examiner. The two sets of scores were then correlated. These procedures were carried out in order to maximize the reliability of the study.

A 2x2 analysis of variance was used with each of the five dependent measures to test all of the hypotheses. Main and interaction effects for the two independent variables were tested. Simple effects were also tested in all cases where the interaction effects were significant. The Pearson Product-Moment Correlation coefficient was used to indicate the degree of relationship between the scaled scores obtained on the subtests.

RESULTS

Tables 1-5 show the analysis of variance summary tables for the five subtests. Table 6a-6e report the means and standard deviations of the experimental groups, and the control group for each dependent variable.

The scores obtained on the Similarities subtest showed the interaction between familiarity and verbal reinforcement to be significant at the .05 level. Because of this significant interaction, Bonferoni "t" tests were done to test the simple effects of the familiarity treatment at each level of the reinforcement treatment on the scores obtained on the Similarities subtest. The Bonferoni "t" tests were also done to compare the group receiving both treatments with each of the other groups. The results showed that each of the three treatment groups scored significantly higher than the untreated control group ($p < .05$), but none of these three treatment groups were significantly different from each other.

There was a significant difference between the scores obtained on the Vocabulary subtest by the group receiving the familiarity treatment, and the group receiving the verbal reinforcement treatment. Table 2 demonstrates that the difference between the means of the familiarity treatment groups for the Vocabulary subtest was significant at the .05 level, with the groups receiving the familiarity treatment scoring higher than those not receiving this treatment.

The verbal reinforcement treatment was found to have a significant effect on the scores obtained on the Similarities subtest. Table 1 shows the difference between the means of the groups to be significant at the .05 level. The hypotheses were not supported by the results obtained from the remaining subtests, Block Design, Digit Span, and Arithmetic (see Tables 3, 4, 5). In fact, the results run counter to expectations. Although the familiarity condition was slightly, but not significantly, higher than the non-familiarity condition, the non-verbal reinforcement was found to be significantly higher ($p < .01$) than that of the groups receiving verbal reinforcement.

Pearson correlation coefficients demonstrated that the relationships between subtests vary from moderately high to quite low. They range from .60 between Vocabulary and Similarities to .14 between Similarities and Block Design (see Table 7). Correlation coefficients of scorer reliability ranged from .99 on Block Design to 1.00 on Arithmetic.

Table 1

Analysis of Variance Table for Scores Obtained on the Similarities Subtest

Source of Variance	SS	DF	MS	F	Significance of F
Familiarity	48.00	1	48.00	3.76	
Verbal Reinforcement	52.08	1	52.08	4.08	*
Interaction	56.33	1	56.33	4.41	*
Explained	156.42	3	52.14	4.09	*
Total	717.91	47	15.27		

*Significance at the .05 level.

Table 2

Analysis of Variance Table for Scores Obtained on the Vocabulary Subtest

Source of Variance	SS	DF	MS	F	Significance of F
Familiarity	50.02	1	50.02	8.48	*
Verbal Reinforcement	1.69	1	1.69	0.29	
Interaction	0.52	1	0.52	0.09	
Explained	52.23	3	17.41	2.95	*
Total	311.81	47	6.63		

*Signficant at the .05 level.

Table 3

Analysis of Variance Table for Scores Obtained on the Block Design Subtest

Source of Variance	SS	DF	MS	F	Significance of F
Familiarity	6.02	1	6.02	0.62	
Verbal Reinforcement	99.19	1	99.19	10.28	**
Interaction	4.69	1	4.69	0.48	
Explained	109.90	3	36.63	3.80	*
Total	534.47	47	11.37		

*Significant at the .05 level.

**Significant at the .01 level.

Table 4

Analysis of Variance Table for Scores Obtained on the Arithmetic Subtest

Source of Variance	SS	DF	MS	F	Significance of F
Familiarity	18.75	1	18.75	3.08	
Verbal Reinforcement	0.75	1	0.75	0.12	
Interaction	2.08	1	2.08	0.34	
Explained	21.58	3	7.20	1.18	
Total	289.91	47	6.17		

Table 5

Analysis of Variance Table for Scores Obtained on the Digit Span Subtest

Source of Variance	SS	DF	MS	F	Significance of F
Familiarity	8.33	1	8.33	1.23	
Verbal Reinforcement	10.08	1	10.08	1.49	
Interaction	0.08	1	0.08	0.01	
Explained	18.50	3	6.17	0.91	
Total	316.10	47	6.74		

Table 6

Means and Standard Deviations for Treatment Groups by Subtest

Table 6a

Similarities

Verbal Reinforcement	Familiarity 1	Familiarity 2
1	$\bar{X}$=6.25 SD=4.20	$\bar{X}$=6.42 SD=4.46
2	$\bar{X}$=6.33 SD=4.20	$\bar{X}$=2.17 SD=1.94

Table 6b

Arithmetic

Verbal Reinforcement	Familiarity 1	Familiarity 2
1	$\bar{X}$=7.58 SD=3.34	$\bar{X}$=6.75 SD=2.26
2	$\bar{X}$=8.25 SD=2.41	$\bar{X}$=6.75 SD=1.50

Table 6c

Vocabulary

Verbal Reinforcement	Familiarity 1	Familiarity 2
1	$\bar{X}$=7.67 SD=3.05	$\bar{X}$=5.83 SD=2.40
2	$\bar{X}$=7.50 SD=1.57	$\bar{X}$=5.25 SD=2.45

Table 6d

Digit Span

Verbal Reinforcement	Familiarity 1	Familiarity 2
1	$\bar{X}$=8.25 SD=2.26	$\bar{X}$=7.33 SD=2.67
2	$\bar{X}$=9.08 SD=2.50	$\bar{X}$=8.33 SD=2.93

Table 6e

Block Design

Verbal Reinforcement	Familiarity 1	Familiarity 2
1	$\bar{X}$=4.83 SD=2.72	$\bar{X}$=4.75 SD=2.56
2	$\bar{X}$=8.33 SD=3.65	$\bar{X}$=7.00 SD=3.35

1 - Treatment; 2 - No Treatment.

Table 7

Pearson Correlation Coefficients

Subtest	Similarities	Arithmetic	Vocabulary	Digit Span	Block Design
Similarities		0.19	0.60	0.14	0.13
Arithmetic			0.41	0.42	0.07
Vocabulary				0.08	0.16
Digit Span					0.12
Block Design					

DISCUSSION

An analysis of the quantitative data leads to the conclusion that it is unlikely that the results were obtained through the operation of chance factors alone. Minor changes in the test procedures have been demonstrated to affect the test scores obtained by the population of which the sample was representative. The size of the differences obtained is rather remarkable. In several cases they exceeded the standard deviation of the treatment groups, but did not exceed the standard deviations of Wechsler norm group.

The lack of strength of the familiarity condition needs some comment. During testing sessions, it was noted that some members of the familiarity treatment groups demonstrated anxious behaviors and withdrawal even though they had met with the examiner on three different occasions. It is felt that the fact that the period of adjustment to others varies from individual to individual should have been considered and the treatment procedure should have been more extensive in order that all subjects could have become "familiar" with the examiner. The fact that hypotheses One and Two were not more strongly supported may be directed related to the extensiveness of the treatment procedure.

It was noted that there were no main effects of the treatments on the scores obtained on the Arithmetic and Digit Span Subtests. This finding was not surprising considering the fact that the two subtests measure similar mental processes, and

that the correlation between the two scaled scores for these subtests were relatively high. Due to the fact that the Digit Span subtest is such a poor measure of "g" correlates only 0.45 with Verbal Scale (Kaufman, 1979), and only 0.43 with the Full Scale (Kaufman, 1982), it is difficult to hypothesize about the lack of main effects of the treatment on scores obtained on this subtest.

Truax and Martin (1957) stated that the scores obtained on the Arithmetic subtest were not influenced by the manipulation of test procedures due to the fact that arithmetical functions involve relatively well-learned past habits which are "not particularly susceptible to the effects of failure and general anxiety level." However, had this been the case one would have expected to find no main effect of the treatments on the scaled scores obtained on the Vocabulary subtest since this subtest too would appear to be more resistent to experimental variables (Sattler and Theye, 1967). The findings have demonstrated quite the opposite. The familiarity treatment was found to significantly affect Vocabulary subtest scores. Sattler and Theye (1967) have explained these contradictory findings by suggesting that the challenge of the material may override the effects of the experimental variables. Thus, treatment procedures did not significantly affect Arithmetic scaled scores.

The scores obtained on the Similarities subtest were found to be influenced by the verbal reinforcement treatment condition. The Similarities subtest scores were also found to be influenced

by the interaction of the familiarity and verbal reinforcement conditions. Due to the fact that those scores were not significantly affected by the familiarity treatment condition, it is the hypothesis of the experimenter that it was the verbal reinforcement treatment procedure to which the scores were susceptible. It was noted during test sessions that subjects who were "familiar" with the examiner tended to make a great deal of eye contact, to be relaxed, and not to devote total attention to the tasks. When looked at in terms of Guilford's Structure of Intellect Classification, the Similarities subtest is found to measure the cognition of semantic relations and transformations (Sattler, 1982). Thus, one can hypothesize that these mental processes are more susceptible to the lack or presence of verbal reinforcement. This may explain why the mean of the group who obtained just verbal reinforcement was significantly higher. Also, verbal reinforcement by a stranger appeared to be more motivating than reinforcement by someone with whom the subjects were familiar.

Wechsler (1974) indicated that performance on the Block Design subtest indicates how a person approaches a task, and reveals his attitudes, difference in temperament and emotional reactions. With this in mind it is conceivable that the Block Design subtest scores would be susceptible to other extraneous variables other than the manipulation of testing procedures. Thus, personality characteristics appear to heavily impinge on performance on the Block Design subtest. This might help

to explain the large discrepancy between the results obtained on this subtest and those obtained on the other subtests.

Problems and Limitations of the Study

(1) Subjects were not matched in terms of SES. The fact that all urban blacks are not of low SES was not taken into consideration.

(2) Generalization of the findings are limited to students whose ethnic background is black, and who live in the same economic and geographic locations as members of the sample.

(3) There may be some amount of error variance generated due to the fact that testing was done by two examiners. Even though an attempt was made to minimize experimenter effects, it is likely that error variance may still arise because subjects were assigned to examiners due to availability of examiners to participate in the familiarity treatment rather than by random assignment.

(4) There may be some amount of error variance generated due to the fact that an equal number of students from each school was not included in each treatment group.

(5) The screening instrument utilized was normed on white students rather than on a sample representative of the total population.

(6) Students were tested near the end of the school day so as not to interrupt normal class activities. This may have affected their motivational levels.

(7) The extent to which intrinsic variables impacted upon test performance was not investigated.

(8) Schools were selected on a volunteer basis rather than by random selection.

BIBLIOGRAPHY

Candelori, W. P. The effects of non-cognitive variables upon test-taking behavior. Dissertation Abstracts International, 1971, 32, 231.

Combs, Arthur W. Humanism, education and the future. Educational Leadership, 1978, 35 (4), 300-303.

Combs, Arthur W., Avila, Donald L., Purkey, William W. Helping relationships. Boston: Allyn and Bacon, Inc., 1978.

Exner, J. E. Jr. Variations in WISC performance as influenced by differences in pretest rapport. Journal of General Psychology, 1966, 64, 299-306.

Feldman, S. E., and Sullivan, D. S. Factors mediating the effects of enhanced rapport on children's performance. Journal of Consulting and Clinical Psychology, 1971, 36, 302.

Irons, Donna. The effects of familiarity with the examiner on WISC-R verbal, performance and full-scale scores. Psychology in the Schools, 1981, 18, 496-499.

Kaufman, Alan S. Intelligent testing with the WISC-R. New York: John Wiley and Sons, 1979.

Kinnie, E. J., and Sternlof, R. E. The influence of non-intellective factors on the IQ scores of middle- and lower-class children. Child Development, 1971, 42, 1989-1995.

Klausmeier, Herbert J. Learning and human abilities. New York: Harper and Row, 1971.

Reschly, Daniel J. Nonbiased Assessment. In Gary D. Phye and Daniel J. Reschly (eds.), School psychology: Perspectives and issues. New York: Academic Press, 1979.

Rosenthal, Robert. Experimenter effects in behavioral research. New York: Irvington Publishers, Inc., 1976.

Sacks, Elinor L. Intelligence scores as a function of experimentally established social relationships between child and examiners. Journal of Abnormal Psychology, 1952, 47, 354-358.

Saigh, Phillip A. The validity of the WISC-R examiner verbal praise procedure as a concurrent predictor of the academic achievement of intellectually superior students. Journal of Clinical Psychology, 1981, 37 (3), 647-649.

Sattler, Jerome M., and Theye, Fred. Procedural, situational, and interpersonal variables in individual intelligence testing. Psychological Bulletin, 1967, 68 (5), 347-360.

Sattler, Jerome M. Assessment of children's intelligence and special abilities. Boston: Allyn and Bacon, Inc., 1982.

Terman, L. M. and Merrill, M. A. Measuring intelligence. New York: Houghton Mifflin, 1937.

Terrell, Francis, Terrell, Sandra L. and Taylor, Jerome. Effects of race of examiner and type of reinforcement on the intelligence test performance of lower-class black children. Psychology in the Schools, 1980, 17, 270-277.

Truax, C. B., and Martin, B. The immediate and delayed effect of failure as a function of task complexity and personalization of failure. Journal of Abnormal Psychology, 1957, 55, 16-20.

Wechsler, David. Wechsler Intelligence Scale for Children-Revised. New York: Psychological Corporation, 1974.

Witmer, J. M., Bernstein, A. V., and Dunham, R. M. The effect of verbal approval and disapproval upon the performance of third and fourth grade children on four subtests of the Wechsler Intelligence Scale for Children. Journal of School Psychology, 1971, 9, 347-356.